

Appl. No. : 09/921,158
Filed : August 1, 2001

AMENDMENTS TO THE CLAIMS

Please cancel Claim 16 without prejudice.

Please amend the claims as follows:

1. (Previously Amended) A method for closing a wound in a blood vessel of a patient, comprising:
 - providing a guidewire extending through the wound and out of the patient;
 - providing a catheter adapted to accommodate the guidewire and comprising a lumen, the catheter having at least one hole formed through a side of the catheter, the at least one hole communicating with the lumen;
 - providing a source of suction;
 - placing the lumen into communication with the source of suction;
 - providing a retractor having a plurality of elongate retractor arms;
 - coupling the retractor to the catheter so that a distal end of each retractor arm is positioned proximal of the hole a distance at least the same as a thickness of a wall of the blood vessel;
 - mounting a hemostatic material onto an outer surface of the catheter;
 - threading the catheter over the guidewire;
 - advancing the catheter and retractor over the guidewire until blood is drawn through the at least one hole in the lumen;
 - actuating the retractor to at least partially provide an access path to an outer wall of the blood vessel surrounding the wound;
 - advancing the hemostatic material over the outer surface of the catheter into contact with the outer wall of the blood vessel; and
 - removing the retractor, catheter and guidewire.
2. (Previously Amended) The method of Claim 1, wherein the hemostatic material comprises an absorbent material, and additionally comprising holding the hemostatic material in position until it is anticipated that the hemostatic material has become at least partially soaked with blood.
3. (Withdrawn) The method of Claim 1 additionally comprising applying a flowable adhesive to the hemostatic material before the material is advanced into contact with the blood vessel.

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4. (Withdrawn) The method of Claim 1 additionally comprising applying adhesive to a portion of the blood vessel adjacent the puncture wound prior to advancing the hemostatic material into contact with the blood vessel.

5. (Previously Amended) The method of Claim 1 additionally comprising applying a flowable adhesive to the hemostatic material after the material has been advanced into contact with the outer wall of the blood vessel.

6. (Original) The method of Claim 1 additionally comprising providing a viewing portion communicating with the lumen and adapted to enable identification of bodily fluids drawn through the lumen.

7. (Original) The method of Claim 6, wherein the catheter is substantially transparent, and the viewing portion comprises the catheter.

8. (Previously Amended) The method of Claim 1 additionally comprising providing a push member having a distal end and being adapted to move longitudinally relative to the outer surface of the catheter, and engaging the hemostatic material with the distal end of the push member and advancing the push member so as to advance the hemostatic material over the catheter and into contact with the outer wall of the blood vessel.

9. (Previously Amended) The method of Claim 8 additionally comprising holding the hemostatic material in position using the push member while removing the catheter from the blood vessel wound.

10. (Currently Amended) A method for closing a blood vessel wound, comprising:
providing a guidewire extending through the wound and out of the patient;
providing an elongate catheter;
~~locating the wound;~~
~~positioning a surgical implement advancing the catheter over the guidewire so that~~
 a portion of the ~~implement-catheter~~ extends through the wound and a portion extends out
 of the wound, an outer diameter of the catheter adjacent the wound being greater than an
outer diameter of the wound and so that the surgical implement-catheter engages edges of
the wound so as to substantially plug the wound;
 providing a hemostatic material;
 positioning the hemostatic material ~~about~~ substantially circumferentially around
 an outer surface of the ~~implement-catheter;~~ and

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advancing the hemostatic material distally over the ~~surgical implement-elongate catheter~~ so that the hemostatic material engages an outer wall of the blood vessel adjacent the wound.

11. (Original) The method of Claim 10 additionally comprising providing an access passage to the wound.

12. (Original) The method of Claim 11, wherein the access passage is provided by a plurality of elongate retractor arms.

13. (Previously Amended) The method of Claim 11 additionally comprising applying suction to clear a field surrounding the wound prior to advancing the hemostatic material.

14. (Currently Amended) The method of Claim 10 additionally comprising removing the ~~implement-catheter~~ from the wound and holding the hemostatic material in place on the wound after the ~~implement-catheter~~ has been removed so that the material becomes at least partially soaked with blood from the wound.

15. (Currently Amended) The method of Claim 10, wherein the ~~catheter surgical implement~~ comprises a guidewire.

16. Cancelled

17. (Currently Amended) The method of Claim ~~10~~16, wherein a tip of the catheter is extending through the wound.

18. (Original) The method of Claim 17, wherein the catheter is removed from the wound after the hemostatic material is disposed adjacent the wound.

19. (Original) The method of Claim 10, wherein the hemostatic material comprises a sponge-like material comprising a hemostatic agent.

20. (Currently Amended) The method of Claim 10, wherein the hemostatic material is positioned on the ~~catheter surgical implement~~ by poking the ~~implement-catheter~~ through the hemostatic material.

21. (Original) The method of Claim 20, wherein the hemostatic material comprises a first layer and a second layer, the first layer being highly elastic, the second layer comprising a hemostasis agent.

22. (Original) The method of Claim 10 additionally comprising applying adhesive to the hemostatic material.

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23. (Currently Amended) The method of Claim 10 additionally comprising providing a push member having a distal end and being adapted to slide over the ~~catheter~~surgical implement, and engaging the hemostatic material with the distal end and advancing the push member so as to advance the hemostatic material over the ~~implement~~catheter.

24. (Currently Amended) The method of Claim 23, wherein the push member comprises a lumen, and the lumen substantially surrounds the ~~catheter~~surgical implement.

25. (Currently Amended) The method of Claim 24 additionally comprising removing the ~~catheter surgical implement~~ from the wound and push member lumen, and advancing a second hemostatic material through the push member lumen into contact with the first hemostatic material.

26. (Currently Amended) The method of Claim 24 additionally comprising removing the ~~catheter surgical implement~~ from the wound and push member lumen, and inserting flowable adhesive through the push member lumen into contact with the hemostatic material.

27. (Withdrawn) An assembly for closing a blood vessel wound, the assembly comprising:

an elongate catheter accommodating a guidewire threaded therethrough, the catheter configured to slide over the guidewire so that a tip of the catheter extends into a blood vessel wound;

a hemostatic material comprising a hemostasis-facilitating agent; and

a push member adapted to slide relative to the catheter, the push member having a lumen adapted to communicate a flowable adhesive therethrough.

28. (Withdrawn) The assembly of Claim 27 additionally comprising a retractor having at least two retractor arms adapted to selectively open and close around the catheter.

29. (Withdrawn) The assembly of Claim 28 additionally comprising a rod slidable within the push member lumen.

30. (Withdrawn) The assembly of Claim 27, wherein the catheter has a lumen connectable to a source of suction and has a hole formed through a wall thereof near a distal end of the lumen

31. (Withdrawn) The assembly of Claim 30, wherein the catheter comprises at least two lumens.

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32. (Withdrawn) The assembly of Claim 30, wherein the catheter comprises a single lumen.
33. (Withdrawn) An assembly for closing a vascular wound, comprising:
a surgical implement configured to extend at least partially through a vascular wound;
a hemostatic material member comprising a hemostatic agent; and
a push member configured to be longitudinally slidable relative to the surgical implement, the push member adapted to engage and push the hemostatic material longitudinally over the surgical implement.
34. (Withdrawn) The assembly of Claim 33 additionally comprising an access device configured to provide an access passage to the vascular wound.
35. (Withdrawn) The assembly of Claim 33, wherein the surgical implement comprises a guidewire.
36. (Withdrawn) The assembly of Claim 35, wherein the surgical implement comprises a catheter, the catheter being slidable over the guidewire.
37. (Withdrawn) The assembly of Claim 36, wherein the hemostatic material member and the push member are mounted onto the catheter so as to slide longitudinally over the catheter, and the hemostatic material member is mounted distally of the push member.
38. (Withdrawn) The assembly of Claim 33, wherein the push member comprises an elongate body and a proximal handle portion, and a longitudinal lumen is formed through the push member.
39. (Withdrawn) The assembly of Claim 38 additionally comprising an elongate release rod, the rod configured to slidably fit through the push member lumen.
40. (Withdrawn) The assembly of Claim 38, wherein the push member body has a plurality of holes formed through a side wall thereof near a distal end of the body.
41. (Withdrawn) The assembly of Claim 33, wherein the hemostatic material member comprises a first layer having relatively high elasticity and a second layer comprising a hemostasis agent, and the first and second layers are attached.
42. (Withdrawn) The assembly of Claim 41, wherein the first and second layers are attached to each other by a cement.

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43. (Withdrawn) The assembly of Claim 41, wherein the first and second layers are integrally formed.

44. (Withdrawn) The assembly of Claim 41, wherein the hemostatic material member is configured so that a puncture hole through the first and second layers is substantially sealingly closed by the elastic first layer.

45. (Withdrawn) The assembly of Claim 44, wherein the surgical implement extends through a puncture hole through the first and second layers.

46. (Previously Added) The method of Claim 1, wherein the hemostatic material comprises a blood clotting agent.

47. (Previously Added) The method of Claim 46, wherein the hemostatic material does not enter the wound.

48. (Previously Added) The method of Claim 1 additionally comprising providing a means for locking the hemostatic material in place, and advancing the locking means over the catheter to a point adjacent the hemostatic material.

49. (Previously Added) The method of Claim 48, wherein the locking means comprises swept-back arms.

50. (Currently Amended) The method of Claim 10, wherein the ~~surgical implement~~ catheter flexes the edges of the blood vessel wound.

51. (Previously Added) The method of Claim 10, wherein the hemostatic material comprises a blood clotting agent.

52. (Previously Added) The method of Claim 51, wherein the hemostatic material does not enter the wound.